

## CLAIMS

1. A method of treating a gas containing a fluorine-containing compound, comprising contacting said gas with a treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide.
2. A method of carrying out decontamination treatment on a gas containing at least one selected from the group consisting of fluorine-containing compounds, oxidizing gases, acidic gases and CO, comprising adding oxygen to said gas and contacting said gas with a treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide.
3. The method according to claim 1 or 2, wherein said mixture of aluminum hydroxide and calcium hydroxide is in the form of an agglomerate in which calcium hydroxide fine particles are attached to the surface of aluminum hydroxide particles.
4. The method according to any of claims 1 through 3, wherein said gas containing a fluorine-containing compound is made to contact with said treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide at a temperature of 550 to 850°C.
5. The method according to any of claims 1 through 3, wherein said gas containing a fluorine-containing compound is initially made to contact with said treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide at a temperature of 500 to 700°C, and is then

made to contact with said treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide at a temperature 50 to 150°C higher than initially in a range of 650 to 800°C.

- 5 6. An apparatus for treating a gas containing a fluorine-containing compound, comprising:

a treatment column comprising a hollow interior that is packed with a treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide and through which  
10 said gas can pass, heating means capable of heating said hollow interior to a prescribed temperature, a gas introduction port for introducing said gas into said hollow interior, and an exhaust pipe for discharging gas produced from said hollow interior.

- 15 7. An apparatus for carrying out decontamination treatment on a gas containing at least one selected from the group consisting of fluorine-containing compounds, oxidizing gases, acidic gases and CO, comprising:

a treatment column comprising a hollow interior that  
20 is packed with a treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide and through which said gas can pass, heating means capable of heating said hollow interior to a prescribed temperature, a gas introduction port for introducing said gas into said hollow  
25 interior, and an exhaust pipe for discharging gas produced from said hollow interior; and

means for adding oxygen to said gas before said gas is introduced into said treatment column or an oxygen

introduction pipe for introducing oxygen into said treatment column.

8. The apparatus according to claim 6 or 7, wherein said mixture of aluminum hydroxide and calcium hydroxide is in the form of an agglomerate in which calcium hydroxide fine particles are attached to the surface of aluminum hydroxide particles.

9. The apparatus according to any of claims 6 through 8, wherein said hollow interior of said treatment column is heated to 550 to 850°C.

10. The apparatus according to any of claims 6 through 8, having a first stage treatment column and a second stage treatment column that each have a hollow interior and are connected together in series, wherein said hollow interior of said first stage treatment column is heated to 500 to 700°C, and said hollow interior of said second stage treatment column is heated to a temperature 50 to 150°C higher than the temperature of said hollow interior of said first stage treatment column in a range of 650 to 800°C.

11. A method of treating a gas containing a fluorine-containing compound and recovering fluorine, comprising contacting said gas with a treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide.

12. The method according to claim 11, wherein said mixture of aluminum hydroxide and calcium hydroxide is in the form of an agglomerate in which calcium hydroxide fine particles are attached to the surface of aluminum hydroxide particles.

13. The method according to claim 11 or 12, wherein said gas containing a fluorine-containing compound is made to contact with said treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide at a temperature  
5 of 550 to 850°C.

14. The method according to claim 11 or 12, wherein said gas containing a fluorine-containing compound is initially made to contact with said treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide at a  
10 temperature of 500 to 700°C, and is then made to contact with said treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide at a temperature 50 to 150°C higher than initially in a range of 650 to 800°C.

15. An apparatus for treating a gas containing a  
15 fluorine-containing compound and recovering fluorine, comprising:

a treatment column comprising a hollow interior that is packed with a treatment agent comprising a mixture of aluminum hydroxide and calcium hydroxide and through which  
20 said gas can pass, heating means capable of heating said hollow interior to a prescribed temperature, a gas introduction port for introducing said gas into said hollow interior, and an exhaust pipe for discharging gas produced from said hollow interior.

25 16. The apparatus according to claim 15, wherein said mixture of aluminum hydroxide and calcium hydroxide is in the form of an agglomerate in which calcium hydroxide fine particles are attached to the surface of aluminum hydroxide

particles.

17. The apparatus according to claim 15 or 16, wherein said hollow interior of said treatment column is heated to 550 to 850°C.

5 18. The apparatus according to claim 15 or 16, having a first stage treatment column and a second stage treatment column that each have a hollow interior and are connected together in series, wherein said hollow interior of said first stage treatment column is heated to 500 to 700°C, and  
10 said hollow interior of said second stage treatment column is heated to a temperature 50 to 150°C higher than the temperature of said hollow interior of said first stage treatment column in a range of 650 to 800°C.